

Docket No. F-8484

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## REMARKS

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Claims 1-10 remain pending in this application. Claims 1-7 and 9 are rejected. Claims 8 and 10 are objected to. Claims 1-10 are amended herein to express the invention in alternative wording, to broaden language as deemed appropriate and to address matters of form unrelated to substantive patentability issues.

Applicant herein traverses and respectfully requests reconsideration of the rejection of the claims and objections cited in the above-referenced Office Action.

Claims 1-7 and 9 are rejected as obvious over Stog (US 4,381,972) in view of Gieritz et al. under 35 U.S.C. §103(a). The applicant herein respectfully traverses this rejection. For a rejection under 35 U.S.C. §103(a) to be sustained, the differences between the features of the combined references and the present invention must be obvious to one skilled in the art.

It is respectfully submitted that a *prima facie* case of obviousness is not established in rejection of claims 1-7 and 9. "To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest

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all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." MPEP §706.02(j) "Contents of a 35 U.S.C. §103 Rejection".

The Office Action admits that the primary Stog reference "does not specifically teach the bar plate joints/connection as claimed by applicant nor applicant's bottom-less gas migration and isolation chamber." (See page 3, last full paragraph). Moreover, applicant respectfully submits that the reference additionally does not teach the claimed shield bars which form the bottom-less gas migration and isolation chamber, and which are arranged laterally and vertically to span the spaces between the horizontal support frames, such that ventilating spaces are present between laterally adjacent ones of the shield bars, wherein the ventilating spaces are sufficiently small to prevent entry of coal particles.

Applicant respectfully submits that the secondary Giertz et al. reference fails to provide any relevant teaching relating to the above noted features admitted to be lacking in Stog. In particular, the disclosure of Giertz et al. does not relate to a plug structure which, according to its presently claimed structural configuration as being fitted to the heat-insulating box on a coking chamber side thereof, is thereby projected into the coking chamber. Rather, Giertz et al. is directed instead to a structure specifically intended and configured for sealing a coke oven door to a door

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frame surrounding the coke-oven chamber. (See col. 2, lines 50-56 referred to by the Examiner). In accordance with this objective, multiple sealing structure provides a gas passageway in a door sealing part, wherein an end of the gas passageway is opened to an open space above charged coal. Such structure is entirely different from the claimed bottom-less gas migration and isolation chamber designed to be extended within the coking chamber itself. Underscoring this difference, is the disclosure of Giertz et al. at col. 2, lines 33-34, which states that “[s]ince the gas channel is not directly connected with the coking coal, it cannot be plugged by the coking coal.” (Emphasis added).

Applicant notes that the Examiner has failed to address the claimed structural elements as they relate to Giertz et al. No mention has been given to the specific configuration of a bottom-less gas migration and isolation chamber formed shield bars arranged laterally and vertically to substantially fill (span) the spaces between horizontal support frames and so arranged with ventilating spaces being present between laterally adjacent shield bars, wherein ventilating spaces are kept sufficiently small to prevent passage of coal particles. No indication has been given by the Examiner where such structural features, admitted to be absent from the primary Stog reference, are specifically described in the reference disclosure or shown in the figures of the Giertz et al. reference.

Furthermore, each of the independent claims 1, 4 and 5 includes a positive recitation directed to a particular mode of attachment of the shield bars to the

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horizontal support frames. The Office Action does not provide support for the various claim rejections in light of these limitations by reference to the cited art as to disclosure of these claimed features.

In accordance with MPEP 706.02(j), when a claim is rejected the Examiner should set forth "the relevant teachings of the prior art relied upon, preferable with reference to the relevant column or page number(s) and line number(s)." In order for the applicant to respond appropriately, it is respectfully requested that, in the event the pending claims are again rejected based on the cited references, the Examiner set forth the relevant teachings in the cited references with reference to relevant column and line numbers or reference designators.

Thus, it is respectfully submitted that the rejected claims are not obvious in view of the cited references for the reasons stated above. Reconsideration of the rejections of claims 1-7 and 9 and their allowance are respectfully requested.

Claims 8 and 10 are objected to as being dependent from rejected base claims. The Examiner indicates that the claims contain allowable subject matter and would be allowed if put in independent form incorporating the limitations of the base and intervening claims. The claims are amended in accordance with the Examiner's suggestion. Claim 8 is placed in independent form with claim 10 being dependent therefrom. Reconsideration of the objection and allowance of the claims are respectfully requested.

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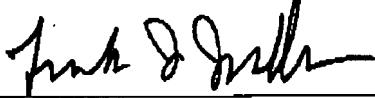
For the convenience of the Examiner, APPENDIX I is provided herewith having a complete set of pending claims with all amendments effected therein.

One (1) further independent claim in excess of three is added. **The fee of \$200 for the claim is provided for in the charge authorization presented in the PTO Form 2038, Credit Card Payment form, provided herewith.**

If there is any discrepancy between the fee(s) due and the fee payment authorized in the Credit Card Payment Form PTO-2038 or the Form PTO-2038 is missing or fee payment via the Form PTO-2038 cannot be processed, the USPTO is hereby authorized to charge any fee(s) or fee(s) deficiency or credit any excess payment to Deposit Account No. 10-1250.

In light of the foregoing, the application is now believed to be in proper form for allowance of all claims and notice to that effect is earnestly solicited.

Respectfully submitted,  
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Appendix I

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**APPENDIX I****ALL PENDING CLAIMS WITH AMENDMENTS EFFECTED THEREIN**

1. (Currently amended) A coke oven door to promote temperature rise in a vicinity thereof, comprising:

a heat-insulating box provided on an inner side of an oven door structure adapted to open and close a door jamb in the coke oven charged with coal particles via a seal plate pressed against said door jamb;

horizontal support frames fitted to a coking chamber side of the heat-insulating box and spaced apart with spaces therebetween to partition a height of said heat-insulating box into multiple sections; and

a bottom-less gas migration and isolation chamber formed by shield bars arranged laterally and vertically to span the spaces between said horizontal support frames and so arranged with ventilating spaces being present between laterally adjacent ones of said shield bars, said ventilating spaces being sufficiently small to prevent passage of coal particles, an upper end of each of the shield bars being pivotally fastened to said horizontal support frames.

2. (Currently amended) A coke oven door according to claim 1, wherein adjoining ends of at least a portion of the shield bars which are arranged on the coke

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oven side of the bottom-less gas migration and isolation hollow plug are joined by stepped joints, with said ventilating spaces left therebetween.

3. (Currently amended) A coke oven door according to claim 1, wherein mating ends of vertically adjacent ones of said shield bars which include a lower end of an upper shield bar of said vertically adjacent ones of shield bars and an upper end of a lower shield bar of said vertically adjacent ones of shield bars which is mounted vertically below said upper shield bar are movably joined together by forming notched cross-sections, with a notched mating groove directed toward said gas migration and isolation hollow plug provided on one of the mating ends and a loosely fitting projection on an other of the mating ends.

4. (Currently amended) A coke oven door to promote temperature rise in a vicinity thereof, comprising:

a heat-insulating box provided on an inner side of an oven door structure adapted to open and close a door jamb in the coke oven charged with coal particles via a seal plate pressed against said door jamb;

horizontal support frames fitted to a coking chamber side of the heat-insulating box and spaced apart with spaces therebetween to partition a height of said heat-insulating box into multiple sections; and

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shield bars fitted in the spaces between said horizontal support frames and arranged with ventilating spaces being present between laterally adjacent ones of said shield bars, said ventilating spaces being sufficiently small to prevent passage of coal particles, said shield bars including upper shield bars each having a slot extending in a direction of oven height and provided in a mating surface of a lower end thereof, said shield bars further including lower shield bars each having a downward-extending projection adapted to pass through and engage with said slot and a projecting stopper in a lower position thereof adapted to come in contact with the lower end of an associated one of said horizontal support frames.

5. (Currently amended) A coke oven door to promote temperature rise in a vicinity thereto, comprising:

a heat-insulating box provided on an inner side of an oven door structure adapted to open and close a door jamb in the coke oven charged with coal particles via a seal plate pressed against said door jamb;

horizontal support frames having a rugged engaging portion at an upper edge thereof which include recesses on both sides of a projection, said horizontal support frames being spaced apart with spaces therebetween to partition a height of said heat-insulating box into multiple sections; and

a bottom-less gas migration and isolation hollow plug formed by putting together shield bars, both vertically and laterally, to span the spaces between said

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horizontal support frames and so arranged with ventilating spaces being present between laterally adjacent ones of said shield bars, said ventilating spaces being sufficiently small to prevent passage of coal particles, said shield bars having two separated hooks adapted to engage with the recesses on both sides of said projection on said horizontal support frame by stepped joints and vertical sliding spaces on a projecting side of both stepped joints, and a projecting stopper to prevent breakoff of a one of the shield bars by coming into contact with said horizontal support frame provided in a lower part of the shield bar.

6. (Currently amended) A coke oven door according to claim 1, wherein said heat insulating box includes a cast-iron box containing a heat-insulating material which is provided between the oven door structure and the bottom-less gas migration and isolation hollow plug.

7. (Currently amended) A coke oven door according to claim 1, further comprising one or more vertical nozzle pipes which are separately provided in the bottom-less gas migration and isolation hollow plug, each of said vertical nozzle pipes comprising a gas nozzle in the upper part, a coal dust chute in the lower part, a combustion gas supply pipe communicating with a combustion gas supply source provided therebetween,.

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8. (Currently amended) A coke oven door to promote temperature rise in a vicinity thereof, comprising:

a heat-insulating box provided on an inner side of an oven door structure adapted to open and close a door jamb in the coke oven charged with coal particles via a seal plate pressed against said door jamb;

horizontal support frames spaced apart with spaces therebetween being provided to partition a height of said heat-insulating box into multiple sections;

a bottom-less gas migration and isolation chamber formed by shield bars arranged laterally and vertically to span the spaces between said horizontal support frames and so arranged with ventilating spaces being present between laterally adjacent ones of said shield bars, said ventilating spaces being sufficiently small to prevent passage of coal particles, an upper end of each of the shield bars being pivotally fastened to said horizontal support frames; and

one or more combustion gas injection nozzles being separately provided in the bottom-less gas migration and isolation hollow plug, each of said combustion gas injection nozzles comprising a combustion gas nozzle pipe having, in a gas flow passage thereof, a nozzle directed toward the bottom-less gas migration and isolation hollow plug at one end thereof and a downward opening shutter adapted to close a gas passage in the combustion gas supply pipe connected to a combustion gas supply source at an other end thereof, a cylinder fastened to the uppermost point of said combustion gas nozzle pipe, said downward opening shutter movably connected via

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a movable connecting rod to a rod connected to the coke oven side of a piston reciprocating in said cylinder, and a gas flow pipe connecting the combustion gas pipe nozzle between said nozzle and downward opening shutter and the oven door side of said cylinder.

9. (Currently amended) A coke oven door according to claim 1, further comprising one or more combustion gas nozzle pipes which are separately provided in the bottom-less gas migration and isolation hollow plug, each of said combustion gas injection nozzles comprising a combustion gas nozzle pipe having in the gas flow passage thereof a nozzle directed toward the bottom-less gas migration and isolation hollow plug at one end thereof and a downward opening shutter adapted to close a gas passage in the combustion gas supply pipe connected to a combustion gas supply source at the other, an ovally shaped annular member including an upper end which tilts toward a combustion gas supply source and lower end toward the nozzle, and a downward opening shutter closing an opening in said annular member from the side of the nozzle.

10. (Currently amended) A coke oven door according to claim 8, further comprising a tar reservoir communicating with the combustion gas passage at one end and having a closing lid at an other end being disposed below one or more

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combustion gas supply pipes or combustion gas nozzle pipes separately provided in  
the bottom-less gas migration and isolation hollow plug.

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